The six new competencies industrial companies need on their path to digitization

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Industrial sector companies are in a race to stay market relevant and gain customer intimacy via technology and data. Industrial products CxOs believe that in the coming years customer experiences will become more of a priority for them than products.\(^1\) This is also evidenced by the emerging technology market passing USD 350 billion, the 2.6x increase in technology acquisitions by non-technology companies since 2012, and the constant competition among companies to become data providers.\(^2\)

For example, Microsoft acquired LinkedIn for USD 26 billion to capture its one-of-a-kind dataset mined from its 450 million member network.\(^3\) Technology and data make disruption the new reality. Ninety percent of global managers and executives surveyed by MIT Sloan Management Review and Deloitte “anticipate their industries will be disrupted by digital trends...”, but only 44 percent believe they are adequately prepared for that disruption.\(^4\)

Industry disruption can occur in three ways:

1. **Disrupting their own market** by forcing other players in the market to plan, buy, make, or sell in a radically different way than it does now.

2. **Disrupting another market** by finding an extension of their product or service such that it becomes applicable to another market where they realize more favorable economic optimums.

3. **Disrupted by another company** that provides a cost to serve that is materially less than what is currently in the market, and/or with a better experience that makes the product or service more easily consumable. The disruptive company can reside in an existing market or an entirely unrelated market.

As every industry faces disruption, companies need to take a course of action starting with adopting new competencies that can propel them into the future.

Interestingly, it’s not outsiders in the industrial products sector that CxOs are most concerned about: 76 percent of CxOs report that the real disruption is coming from innovative industry incumbents—in particular, those enterprises that are reinventing themselves to thrive in a disruptive digital era.\(^1\)
The smartest C-suites are preparing for the future by creating teams that learn on the fly. Seventy-four percent of industrial products reinventors already solicit input from employees to develop new approaches, compared with 59 percent and 40 percent with lower degrees of success. Yet, a significant gap still exists and to address the necessity, we’ve defined a New Competencies Framework proven to enable a company to realize their goals. The new competencies and associated attributes fall into six categories outlined in Figure 1. These competencies will help companies disrupt traditional business models and allow early adopters of the framework to capture market share or enter new markets.

### Six new competencies

#### Experiencing the consumer experience
- Relate to diverse consumers
- Assimilate insights from consumerization & market penetration
- Advance user/customer experience

#### Reshaping competitive landscapes
- Understand and respond to the disruption of industries & markets
- Secure environments/foresee threats

#### Collaborating & interacting with technology
- Incorporate new technology influences
- Promote technology advancements
- Adopt scientific thinking & discovery culture
- Embrace human to machine interaction

#### Fortifying brand equity
- Foster an open environment
- Know what’s core to the business
- Design as a brand
- Design as a culture

#### Establishing a dynamic response team
- Explore new operating models
- Commit to new operating procedures
- Integrate partners & embrace the sharing economy
- Evolve to a lot size of one

#### Assimilating automation
- Employ machine to machine interaction
- Link architecture with Operations Research
- Collect & optimize data
- Derive data insights
- Apply pattern recognition

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One: Experiencing the consumer experience

Over 60 percent of CxOs expect customer experiences to be the heart of their transformation rather than products.¹

Relate to diverse consumers
- Establish communities and consortiums
- Instrument and interconnect sensor data on products to monitor consumption and application
- Establish social eminence/relevance
- Apply behavioral science

Advance user/customer experience
- Design and develop a consumable user interface
- Establish visualization techniques to digest outputs from advanced algorithms
- Create interactive capabilities to capture user sentiment in real time

Assimilate insights from consumerization & market penetration
- Integrate technology for interactive experiences
- Utilize IoT with other data (e.g. weather or location) to baseline environmental norms and prescribe actions
- Build partnerships to embed product or service in other products’ markets to gain insight and take advantage of their competencies

Industrial Products
Building materials company CEMEX is undertaking a customer-centric digital transformation for a real-time, mobile-led approach to customer experience. In partnership with IBM iX, CEMEX will launch a series of speed-to-market custom apps that will differentiate the company from others in its market.²
Two: Fortifying brand equity

The fortifying brand equity category builds on the power of reputation fueled by design to run and grow a disruptive business.

**Foster an open environment**
- Engage with universities and development communities
- Establish a collaboration platform that encourages swarm thinking
- Recognize the value of crowdfunding, crowdsourcing, and hackathon sponsorships

**Know what's core to the business**
- Articulate what the external world views as differentiating about the company
- Align pricing strategies and commercial structures to differentiated product or service offerings
- Utilize IIoT data to understand the radically changing environment

**Design as a brand**
- Establish an intuitive product strategy focused on product end-user
- Reimagine the consumer segment and reach of the product
- Establish simplicity in the sophistication of the technology

**Design as a culture**
- Establish design thinking capability throughout the enterprise
- Utilize consumer data to drive higher margins via design
- Use technology to enable a more agile and collaborative design culture

**Electronics**
A quarter of all industrial products CxOs are engaging with platforms. ABB, for example, created a platform that connects customers with nearly 200 digital industrial solutions, services, devices and systems, and serves as a rich vein of data.
Three: Establishing a dynamic response team

This category requires an agile mindset and team culture to drive new ways of working. As mentioned earlier, the best industrial products reinventors already solicit input on new approaches from employees.

Explore new operating models
- Redefine the value chain with new areas for value-added services
- Evolve make-to-stock to assemble-to-order or make-to-order constructs
- Infuse machine learning and cognition throughout execution and decision-making

Integrate partners & embrace the sharing economy
- Have a clear determination of insource, outsource, co-source
- Establish complimentary business models with third parties
- Build a symbiotic network with shared goals

Commit to new operating procedures
- Build or establish work teams with diverse backgrounds
- View technology as an extension of a co-worker
- Embrace business activity monitoring and automation
- Prioritize speed to market, including iterative design, development, and deployment strategies

Evolve to a lot size of one
- Develop flexibility within a structured supply chain
- Utilize ecosystem partners and technologies to develop value-added hubs closer to consumer
- Develop more real-time commerce for custom experiences

Automotive
A new carbon fiber reinforced plastic is disrupting the automotive industry. The material is lower cost and offers higher shock resistance than current materials. It’s set to be the primary structural material in automobile applications by 2020.
Four: Assimilating automation

The assimilating automation category utilizes technological advancements to enable automation and data-driven approaches across the enterprise.

- **Employ machine to machine interaction**
  - Understand and build semantic models to facilitate communication
  - Create dark API strategies
  - Apply artificial intelligence and IoT insights to optimize S&OP plans

- **Derive data insights**
  - Understand, develop, and apply machine learning concepts
  - Incorporate unstructured and contextual data
  - Build advanced algorithms via multiple numerical methods
  - Translate outputs into business priorities and actions

- **Link architecture with operations research**
  - Understand the marriage between IT, OT, and supply chain execution
  - Evaluate the need for customized and/or fabricated IoT devices
  - Establish IoT command/control centers to derive greater operational insights
  - Develop digital records for retrieval and integration with other data

- **Apply pattern recognition**
  - Examine and apply parametric analysis
  - Develop simulation models
  - Examine and analyze degradation and tolerances
  - Model consumer behavior and demand signals

- **Collect and optimize data**
  - Build data curation guidelines and standards
  - Utilize artificial intelligence APIs in conjunction with advanced analytics and semantic data models to solve complex business issues
  - Interpret and integrate voice and facial recognition data
  - Identify data monetization opportunities that optimize cost and drive revenue

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**Industrial Products**

Rio Tinto is building a mine of the future using emerging technology such as wearables to improve management and workforce safety. It incorporates control centers, autonomous trains, and drilling operations.  

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**Back to Figure 1**
The competency category of collaborating and interacting with technology promotes using technology to create new perspectives and new discoveries.

**Incorporate new technology influences**
- Utilize IoT and emerging technology to augment human work
- Identify dynamics where technology can address arduous or hazardous tasks that are more safely done by a machine
- Search for value-added capability of technologies to enhance processes
- Identify where the addition of technology creates new market opportunity

**Promote technology advancements**
- Explore emerging technology patents and potential applications
- Execute pilots for prototypes within existing operations
- Tie emerging technology value with business outcomes

**Adopt scientific thinking & discovery culture**
- Prototype emerging technologies within operations versus only in a lab
- Develop using: big data, IoT data collection and analysis, what if simulations, and predictive/prescriptive capabilities

**Embrace human to machine interaction**
- Redefine human engagements within traditional management systems to include machine recommendations
- Build performance management systems inclusive of emerging technology contributions
- Evolve culture to view technology as extension of self and as a coworker

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**Aerospace & Defense**
Airbus has the potential to disrupt their own market—the airplane manufacturing industry—through new ways of working by establishing an innovation center, launching commercial drone technology efforts, using drones for inspections, and exploring 3D printing applications. They have a venture fund and patent efforts to invest in emerging technology.
Six: Reshaping the competitive landscape

The reshaping the competitive landscape competency category focuses on constantly searching for new ways to utilize data and technology for differentiation, while maintaining a secure environment.

**Understand and respond to the disruption of industries & markets**
- Examine data monetization opportunities
- Establish engagement vehicles that promotes bi-directional collaboration with consumers
- Capture and process new customer sentiment and behaviors
- Study market dynamics for potential oligopolies, for tangential product or service offerings, or new market penetration via differentiated data services
- Utilize new technologies and existing industry expertise to explore opportunities for business model expansion

**Secure environments/foresee threats**
- Apply blockchain technology to IoT architectures
- Incorporate security protocols within communication, cloud, and edge architectures
- Prevent, manage, and eliminate vulnerabilities within the business model
- Apply organizational-level securities to elements of semantic data structures
- Be aware of market dynamics and trends around security risks

**Energy & Utilities**
Automotive company Tesla has an opportunity to disrupt the USD 19 billion energy storage market. The Tesla Powerwall, originally developed for their cars, can store excess energy and be made available for residential and commercial use.
Conclusion

The connected age is impacting every industry and accelerating the advent of Industry 4.0. Disruption and transformation will continue to occur at an ever-increasing pace. Adoption of the New Competency Framework unleashes new perspectives and approaches, new ways of working, and new discoveries and advancements to ultimately achieve new outcomes. The companies causing disruption in today’s industries rely on the confluence of their competencies paired with emerging technologies to achieve greater ROI. As companies incorporate these new competencies, they can expect transformational changes and new outcomes.

Is your workforce ready for disruption?
Answer 10 questions to find out if your business is ready.

Take the assessment

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